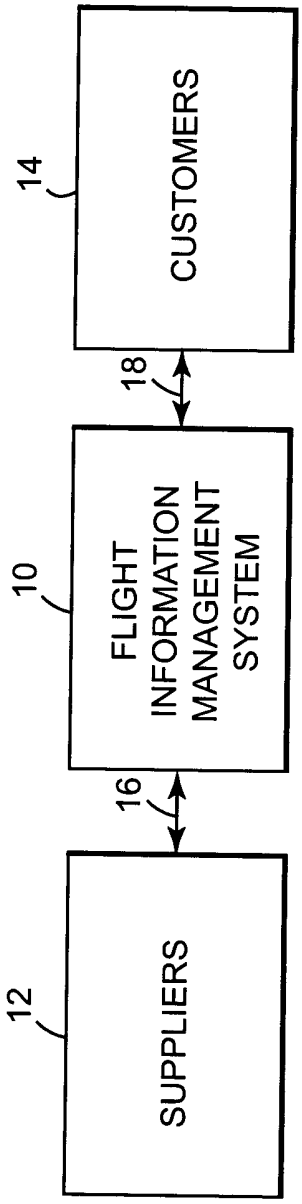
CUSTOMERS
14
18
FLIGHT INFORMATION MANAGEMENT SYSTEM
10
16
SUPPLIERS
12

Fig. 1

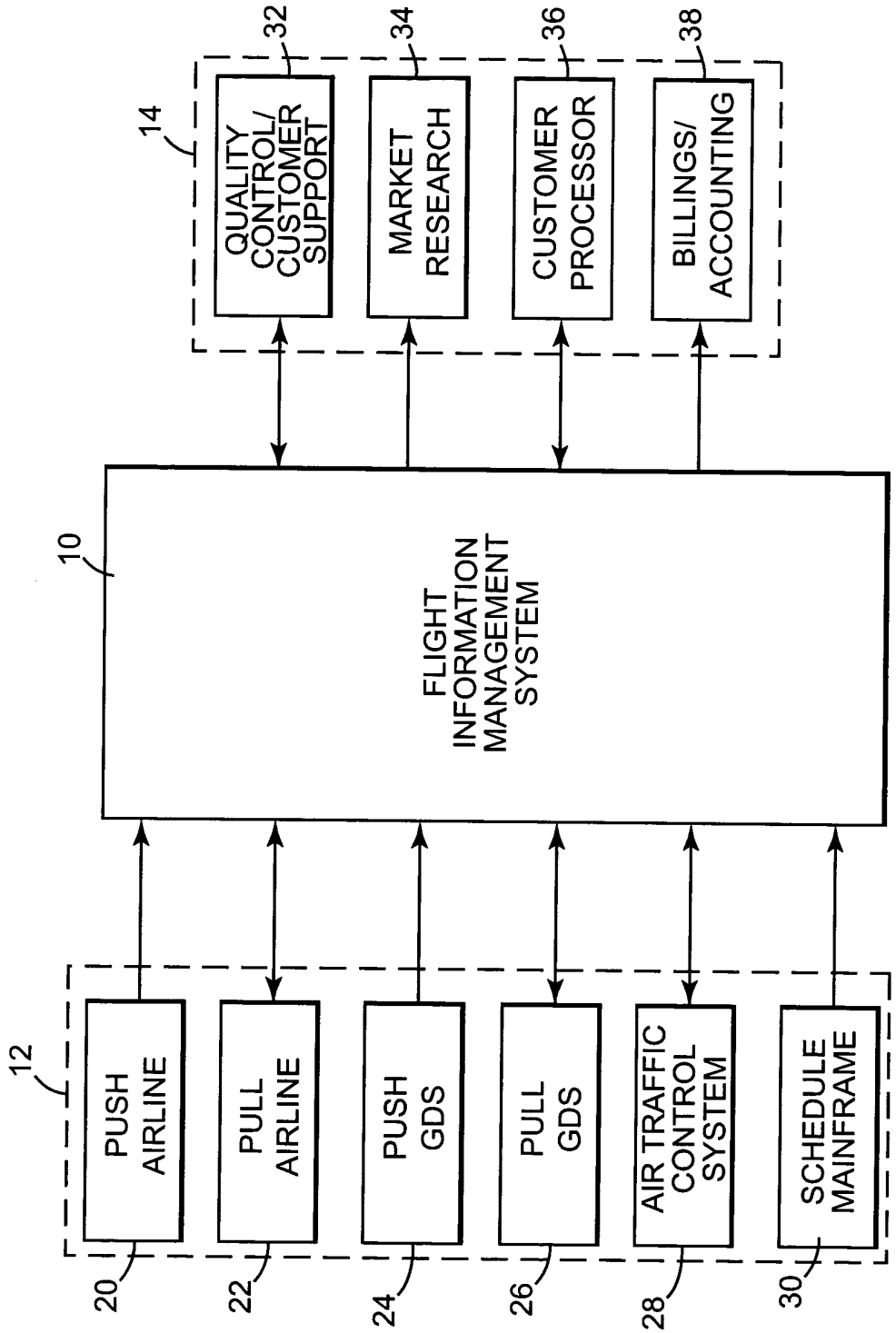
14
32
34
36
38
QUALITY CONTROL/ CUSTOMER SUPPORT
MARKET RESEARCH
CUSTOMER PROCESSOR
BILLINGS/ ACCOUNTING
10
FLIGHT INFORMATION MANAGEMENT SYSTEM
12
PUSH AIRLINE
PULL AIRLINE
PUSH GDS
PULL GDS
AIR TRAFFIC CONTROL SYSTEM
SCHEDULE MAINFRAME
20
22
24
26
28
30

Fig. 2

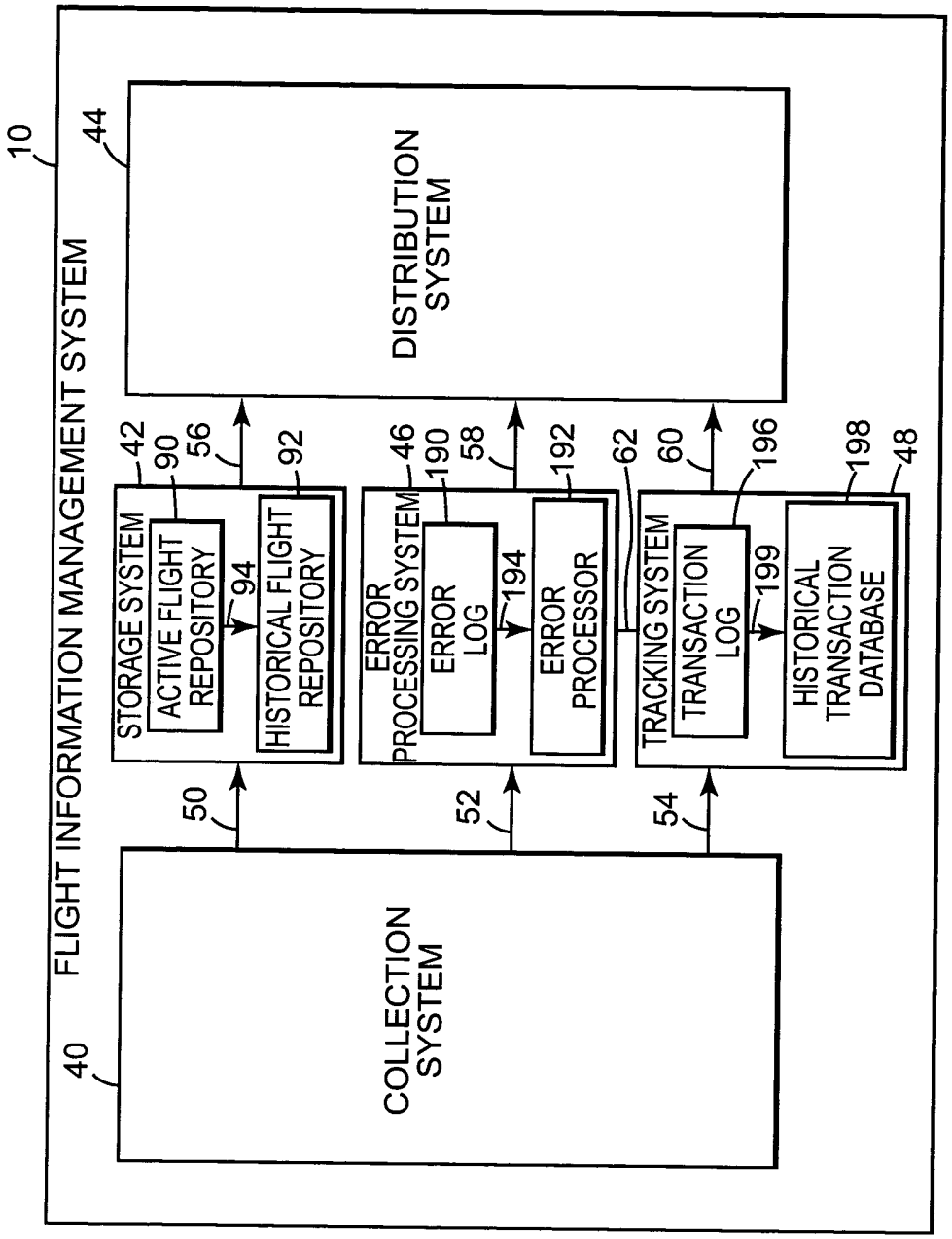
10
FLIGHT INFORMATION MANAGEMENT SYSTEM
40
COLLECTION SYSTEM
50
52
54
42
STORAGE SYSTEM
90
ACTIVE FLIGHT REPOSITORY
94
HISTORICAL FLIGHT REPOSITORY
92
56
46
ERROR PROCESSING SYSTEM
190
ERROR LOG
194
ERROR PROCESSOR
192
58
62
60
TRACKING SYSTEM
TRANSACTION LOG
199
196
HISTORICAL TRANSACTION DATABASE
198
48
44
DISTRIBUTION SYSTEM

Fig. 3

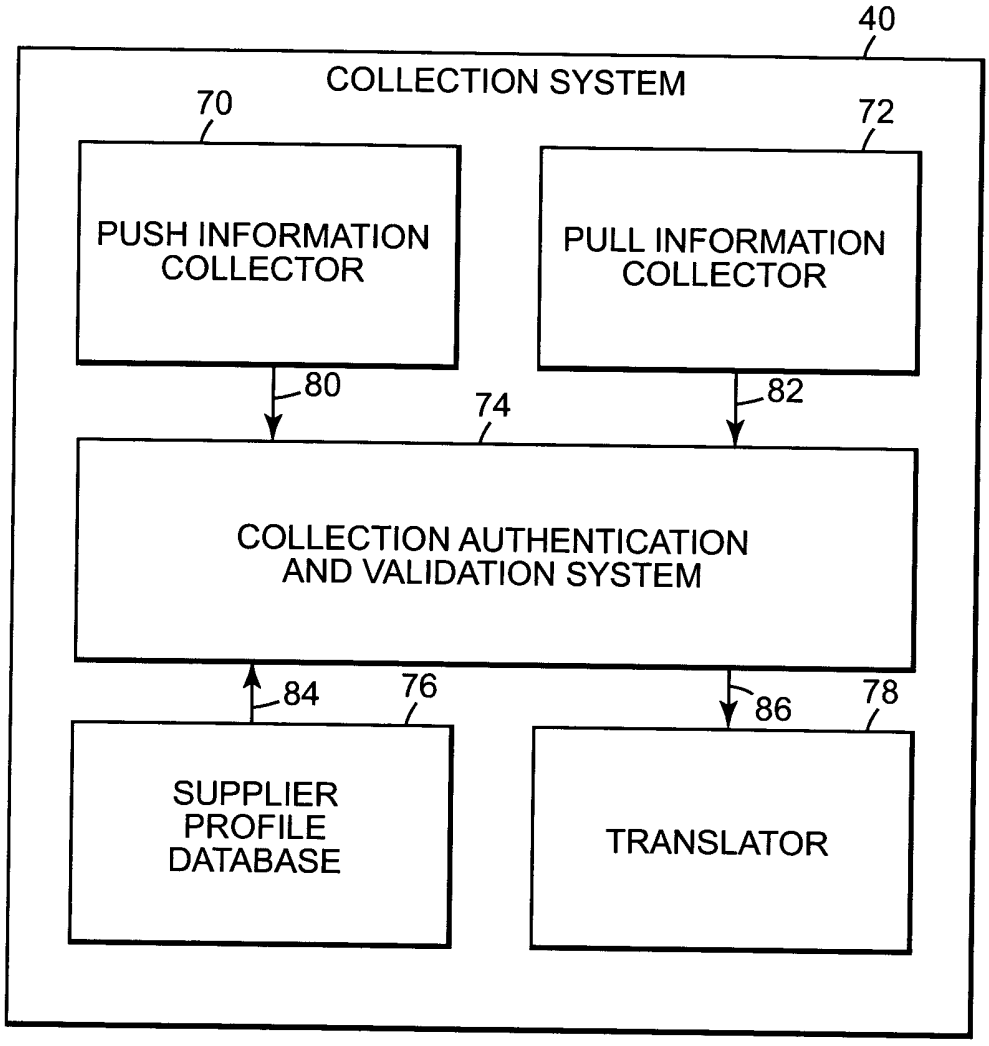
40
COLLECTION SYSTEM
70
PUSH INFORMATION COLLECTOR
72
PULL INFORMATION COLLECTOR
80
82
74
COLLECTION AUTHENTICATION AND VALIDATION SYSTEM
84
76
86
78
SUPPLIER PROFILE DATABASE
TRANSLATOR

Fig. 4

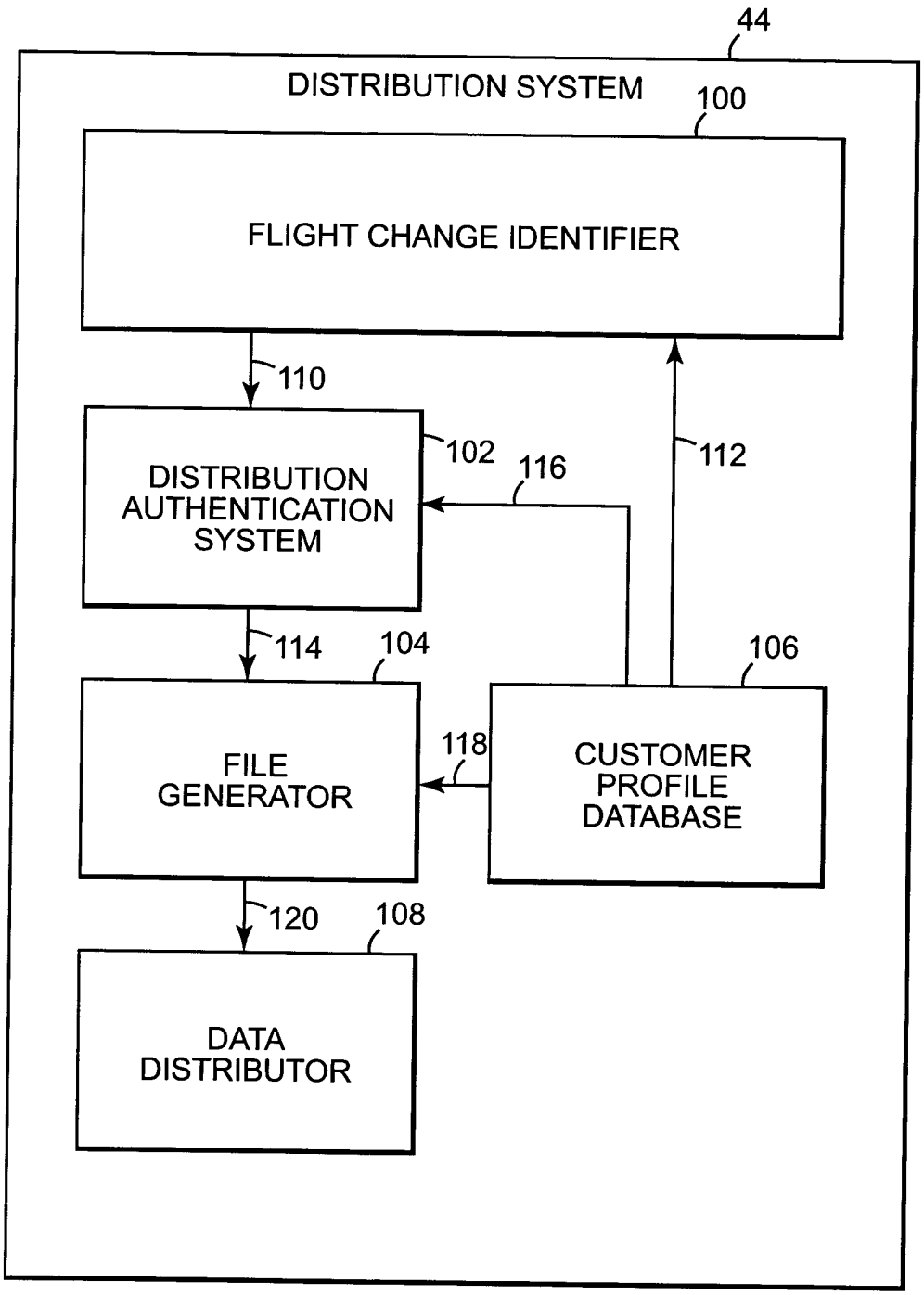
44
DISTRIBUTION SYSTEM
100
FLIGHT CHANGE IDENTIFIER
110
102
116
112
DISTRIBUTION AUTHENTICATION SYSTEM
114
104
106
FILE GENERATOR
118
CUSTOMER PROFILE DATABASE
120
108
DATA DISTRIBUTOR

Fig. 5

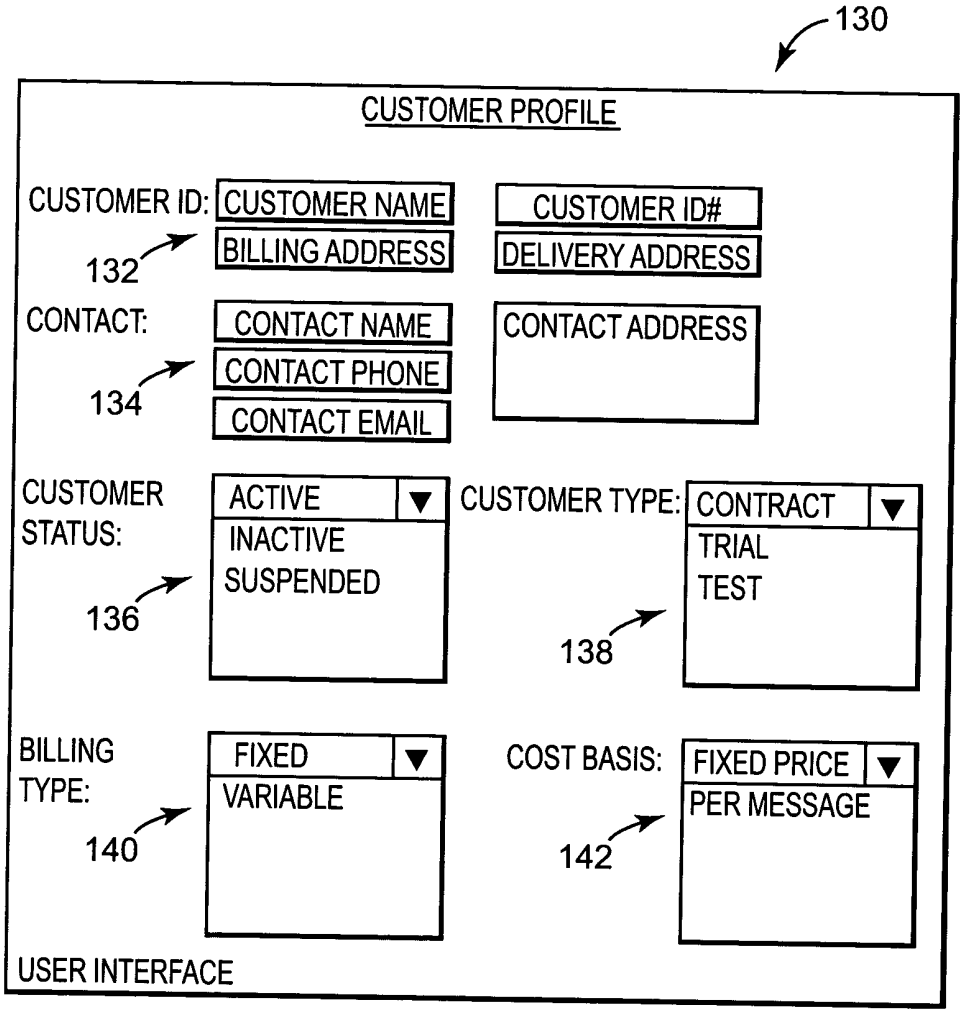
130
CUSTOMER PROFILE
CUSTOMER ID:
CUSTOMER NAME
BILLING ADDRESS
CUSTOMER ID#
DELIVERY ADDRESS
132
CONTACT:
CONTACT NAME
CONTACT PHONE
CONTACT EMAIL
CONTACT ADDRESS
134
CUSTOMER STATUS:
ACTIVE
INACTIVE
SUSPENDED
136
CUSTOMER TYPE:
CONTRACT
TRIAL
TEST
138
BILLING TYPE:
FIXED
VARIABLE
140
COST BASIS:
FIXED PRICE
PER MESSAGE
142
USER INTERFACE

Fig. 6

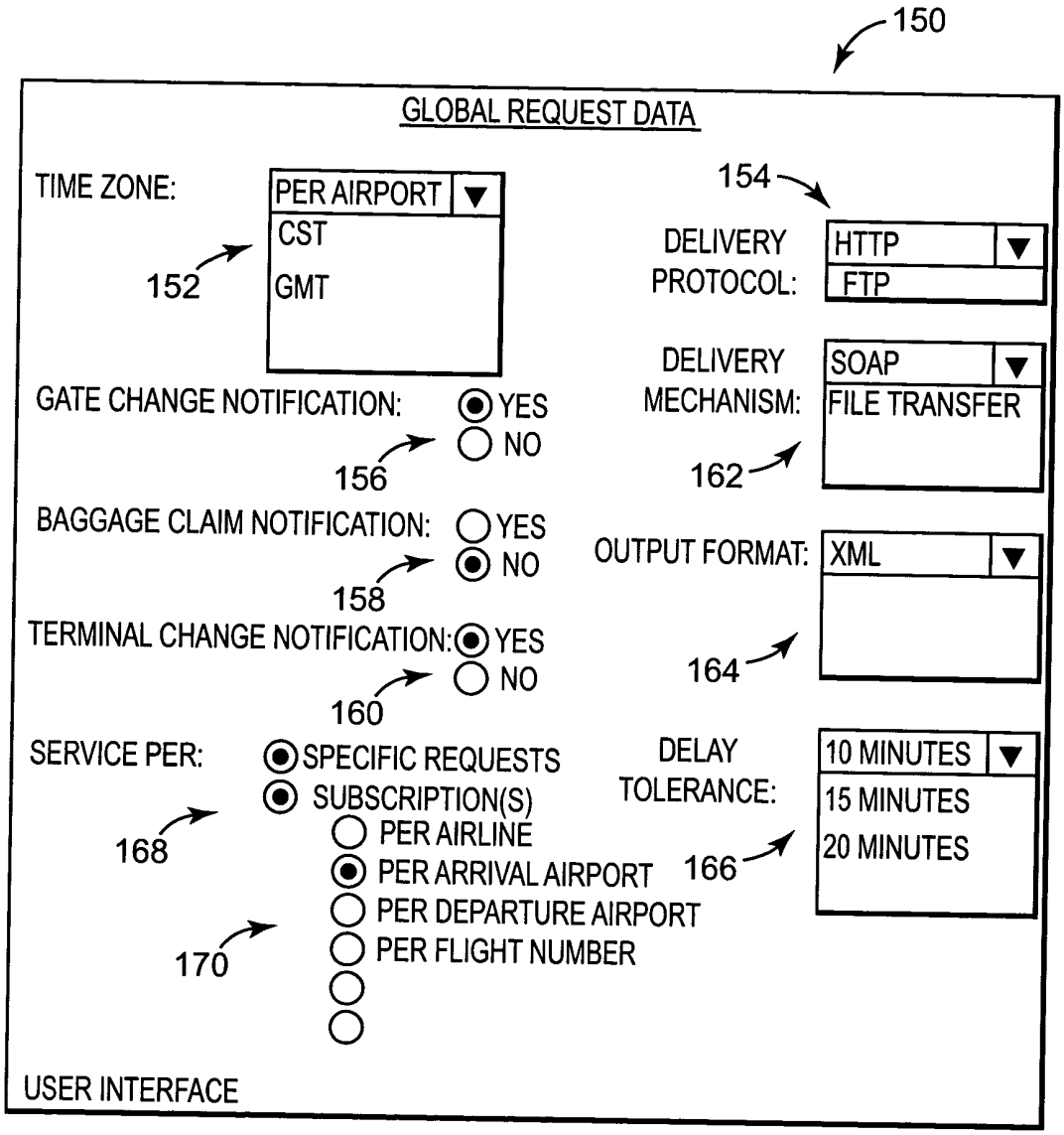
150
GLOBAL REQUEST DATA
TIME ZONE:
PER AIRPORT
CST
GMT
152
154
DELIVERY PROTOCOL:
HTTP
FTP
DELIVERY MECHANISM:
SOAP
FILE TRANSFER
162
GATE CHANGE NOTIFICATION:
YES
NO
156
BAGGAGE CLAIM NOTIFICATION:
YES
NO
158
OUTPUT FORMAT:
XML
164
TERMINAL CHANGE NOTIFICATION:
YES
NO
160
SERVICE PER:
SPECIFIC REQUESTS
SUBSCRIPTION(S)
168
PER AIRLINE
PER ARRIVAL AIRPORT
PER DEPARTURE AIRPORT
PER FLIGHT NUMBER
170
DELAY TOLERANCE:
10 MINUTES
15 MINUTES
20 MINUTES
166
USER INTERFACE

Fig. 7

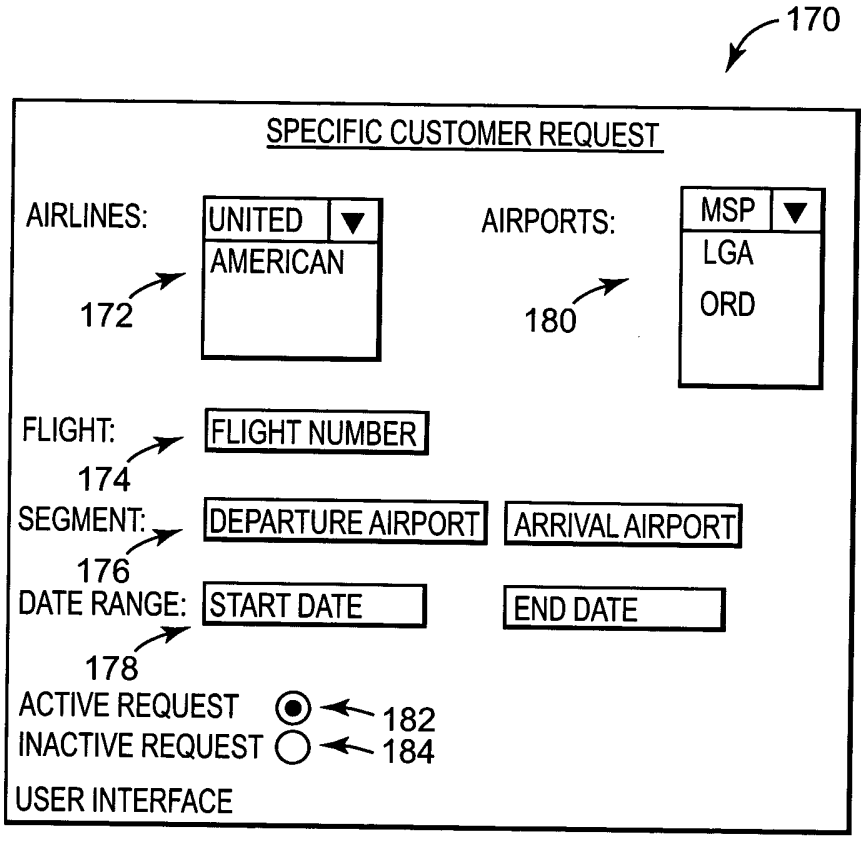
170
SPECIFIC CUSTOMER REQUEST
AIRLINES:
UNITED
AMERICAN
172
AIRPORTS:
MSP
LGA
ORD
180
FLIGHT:
FLIGHT NUMBER
174
SEGMENT:
DEPARTURE AIRPORT
ARRIVAL AIRPORT
176
DATE RANGE:
START DATE
END DATE
178
ACTIVE REQUEST
182
INACTIVE REQUEST
184
USER INTERFACE

Fig. 8

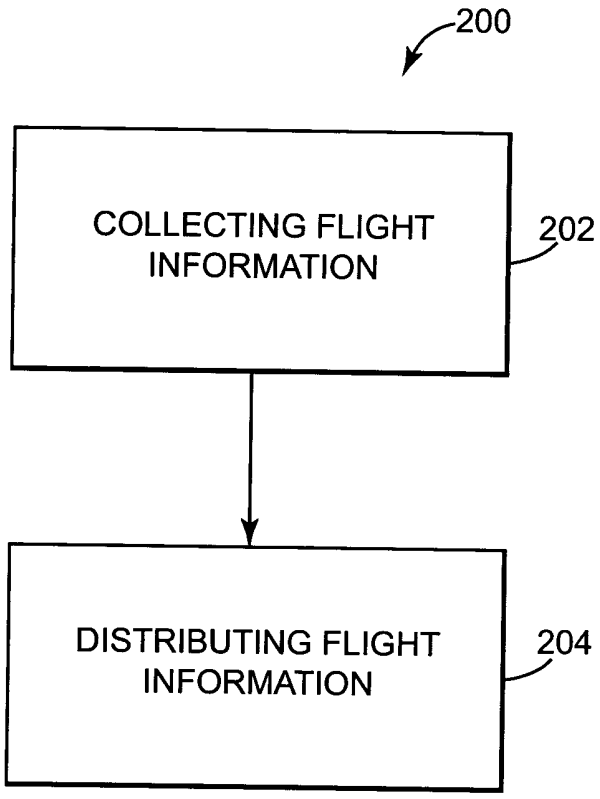
200
COLLECTING FLIGHT INFORMATION
202
DISTRIBUTING FLIGHT INFORMATION
204

Fig. 9

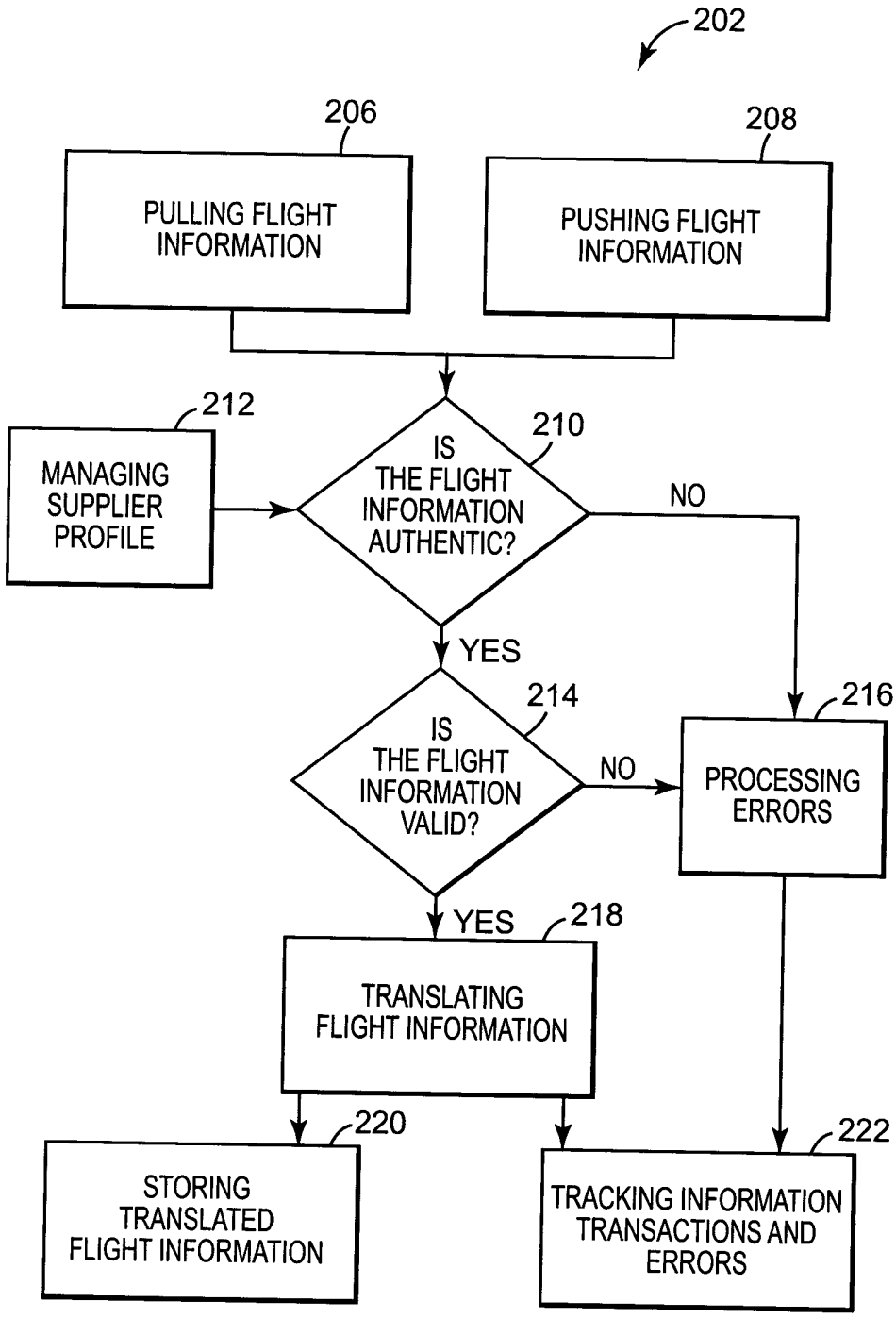
202
206
PULLING FLIGHT INFORMATION
208
PUSHING FLIGHT INFORMATION
212
MANAGING SUPPLIER PROFILE
210
IS THE FLIGHT INFORMATION AUTHENTIC?
NO
YES
214
IS THE FLIGHT INFORMATION VALID?
NO
216
PROCESSING ERRORS
YES
218
TRANSLATING FLIGHT INFORMATION
220
STORING TRANSLATED FLIGHT INFORMATION
222
TRACKING INFORMATION TRANSACTIONS AND ERRORS

Fig. 10

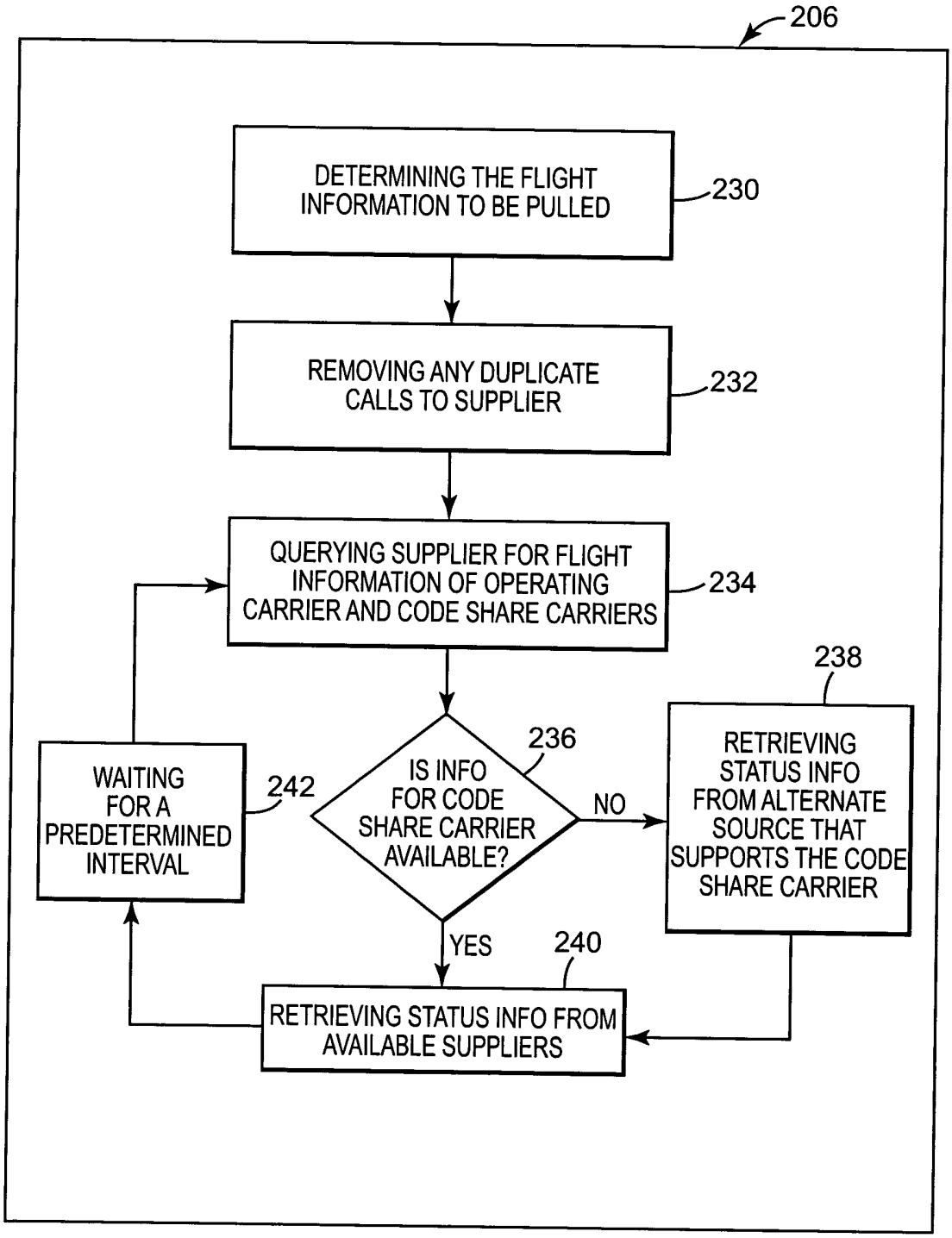
206
DETERMINING THE FLIGHT INFORMATION TO BE PULLED
230
REMOVING ANY DUPLICATE CALLS TO SUPPLIER
232
QUERYING SUPPLIER FOR FLIGHT INFORMATION OF OPERATING CARRIER AND CODE SHARE CARRIERS
234
238
236
IS INFO FOR CODE SHARE CARRIER AVAILABLE?
NO
RETRIEVING STATUS INFO FROM ALTERNATE SOURCE THAT SUPPORTS THE CODE SHARE CARRIER
WAITING FOR A PREDETERMINED INTERVAL
242
YES
240
RETRIEVING STATUS INFO FROM AVAILABLE SUPPLIERS

Fig. 11

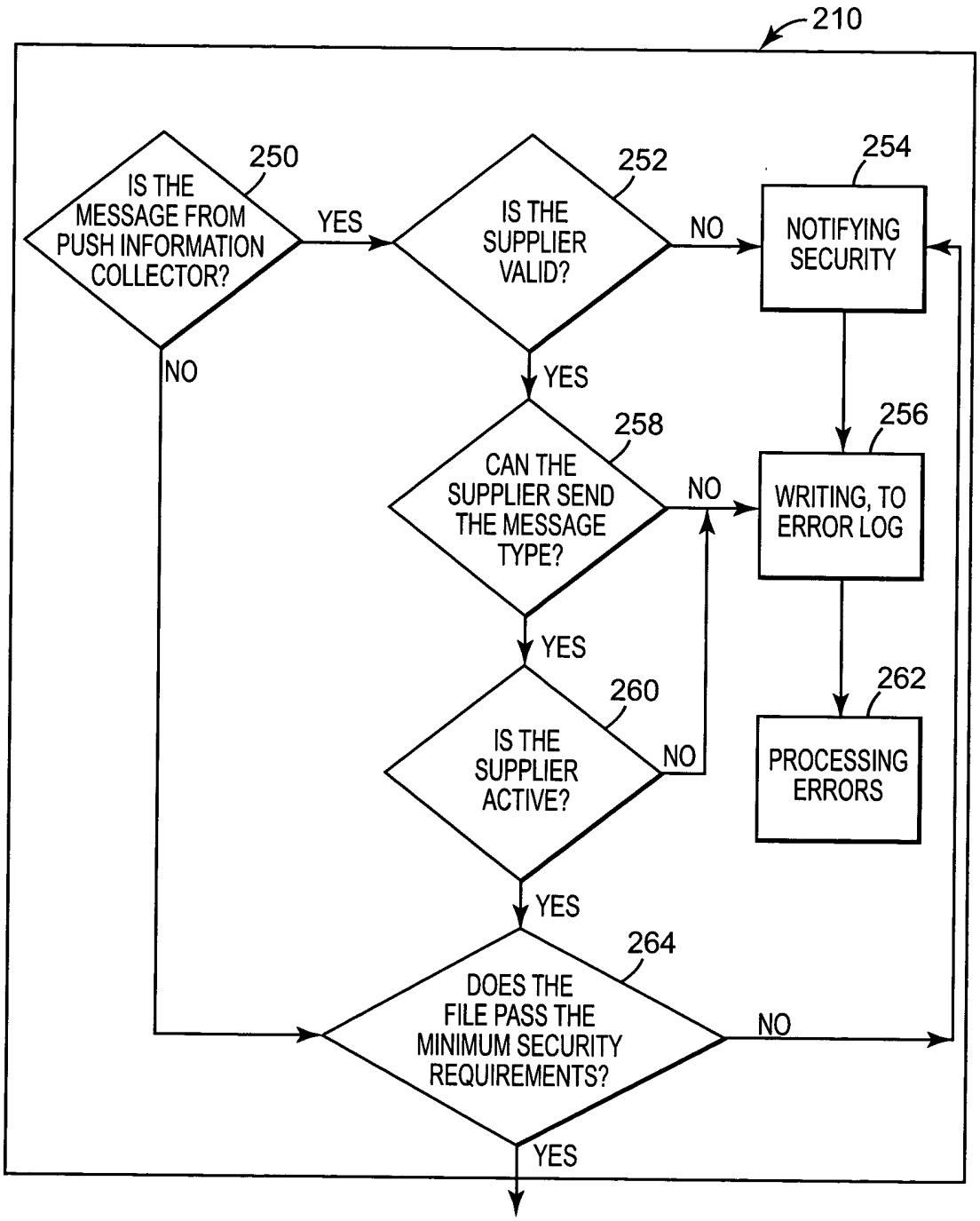
210
250
IS THE MESSAGE FROM PUSH INFORMATION COLLECTOR?
YES
252
IS THE SUPPLIER VALID?
NO
254
NOTIFYING SECURITY
NO
YES
256
258
CAN THE SUPPLIER SEND THE MESSAGE TYPE?
NO
WRITING, TO ERROR LOG
YES
262
260
IS THE SUPPLIER ACTIVE?
NO
PROCESSING ERRORS
YES
264
DOES THE FILE PASS THE MINIMUM SECURITY REQUIREMENTS?
NO
YES

Fig. 12

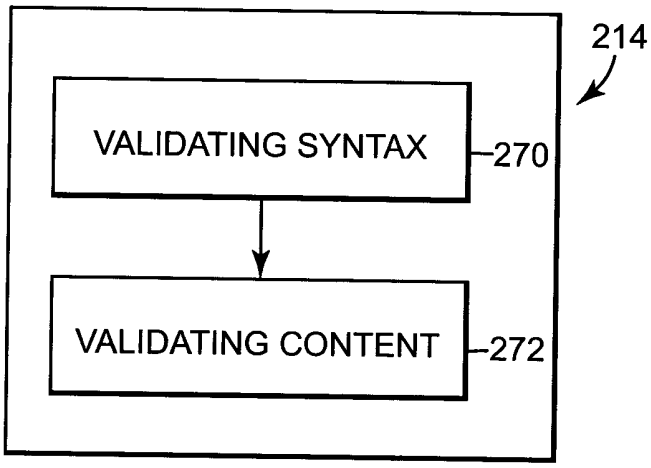

Fig. 13

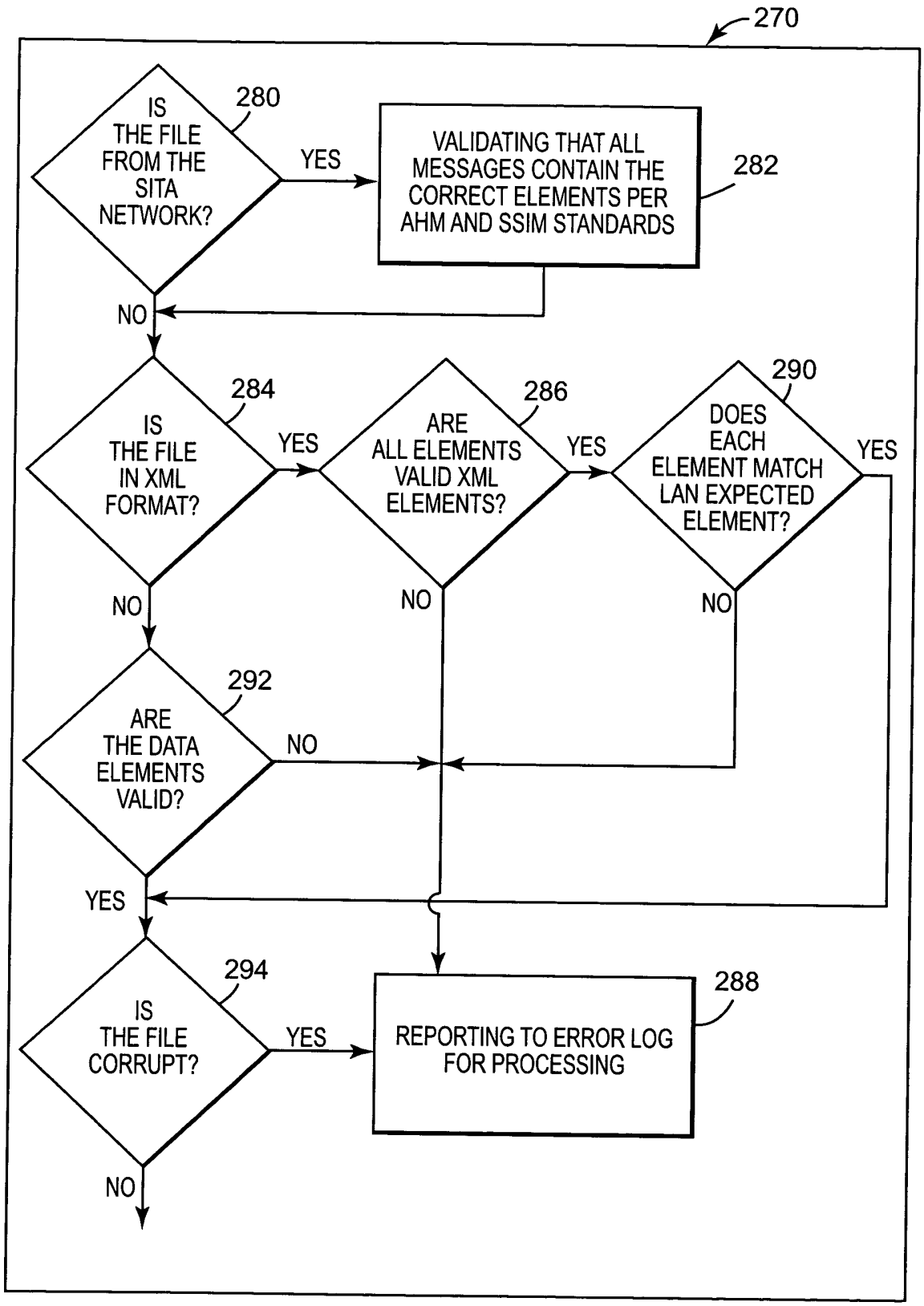
270
IS THE FILE FROM THE SITA NETWORK?
280
YES
VALIDATING THAT ALL MESSAGES CONTAIN THE CORRECT ELEMENTS PER AHM AND SSIM STANDARDS
282
NO
IS THE FILE IN XML FORMAT?
284
YES
ARE ALL ELEMENTS VALID XML ELEMENTS?
286
YES
DOES EACH ELEMENT MATCH LAN EXPECTED ELEMENT?
290
YES
NO
NO
NO
ARE THE DATA ELEMENTS VALID?
292
NO
YES
IS THE FILE CORRUPT?
294
YES
REPORTING TO ERROR LOG FOR PROCESSING
288
NO

Fig. 14

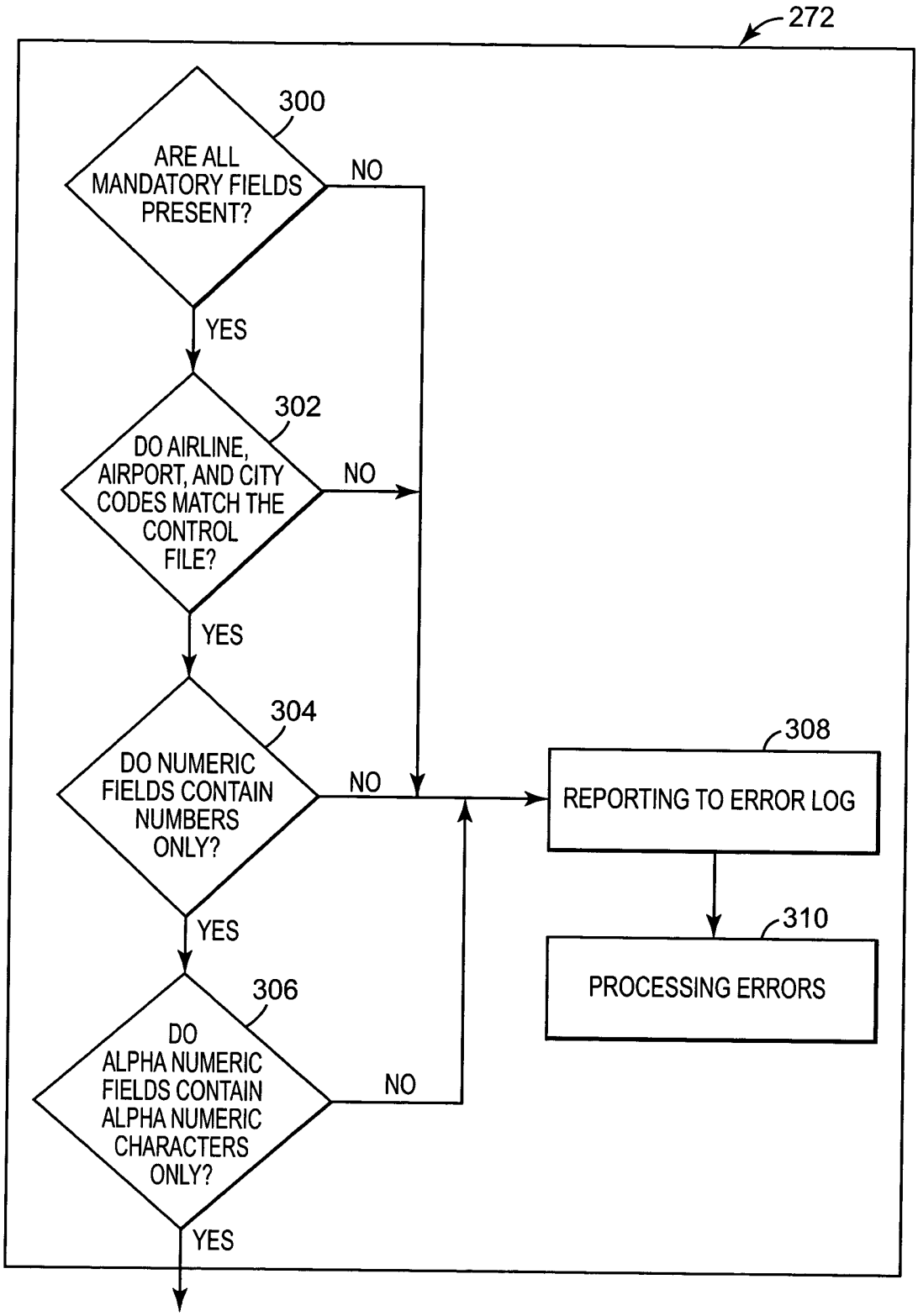
272
300
ARE ALL MANDATORY FIELDS PRESENT?
NO
YES
302
DO AIRLINE, AIRPORT, AND CITY CODES MATCH THE CONTROL FILE?
NO
YES
304
DO NUMERIC FIELDS CONTAIN NUMBERS ONLY?
NO
YES
306
DO ALPHA NUMERIC FIELDS CONTAIN ALPHA NUMERIC CHARACTERS ONLY?
NO
YES
308
REPORTING TO ERROR LOG
310
PROCESSING ERRORS

Fig. 15

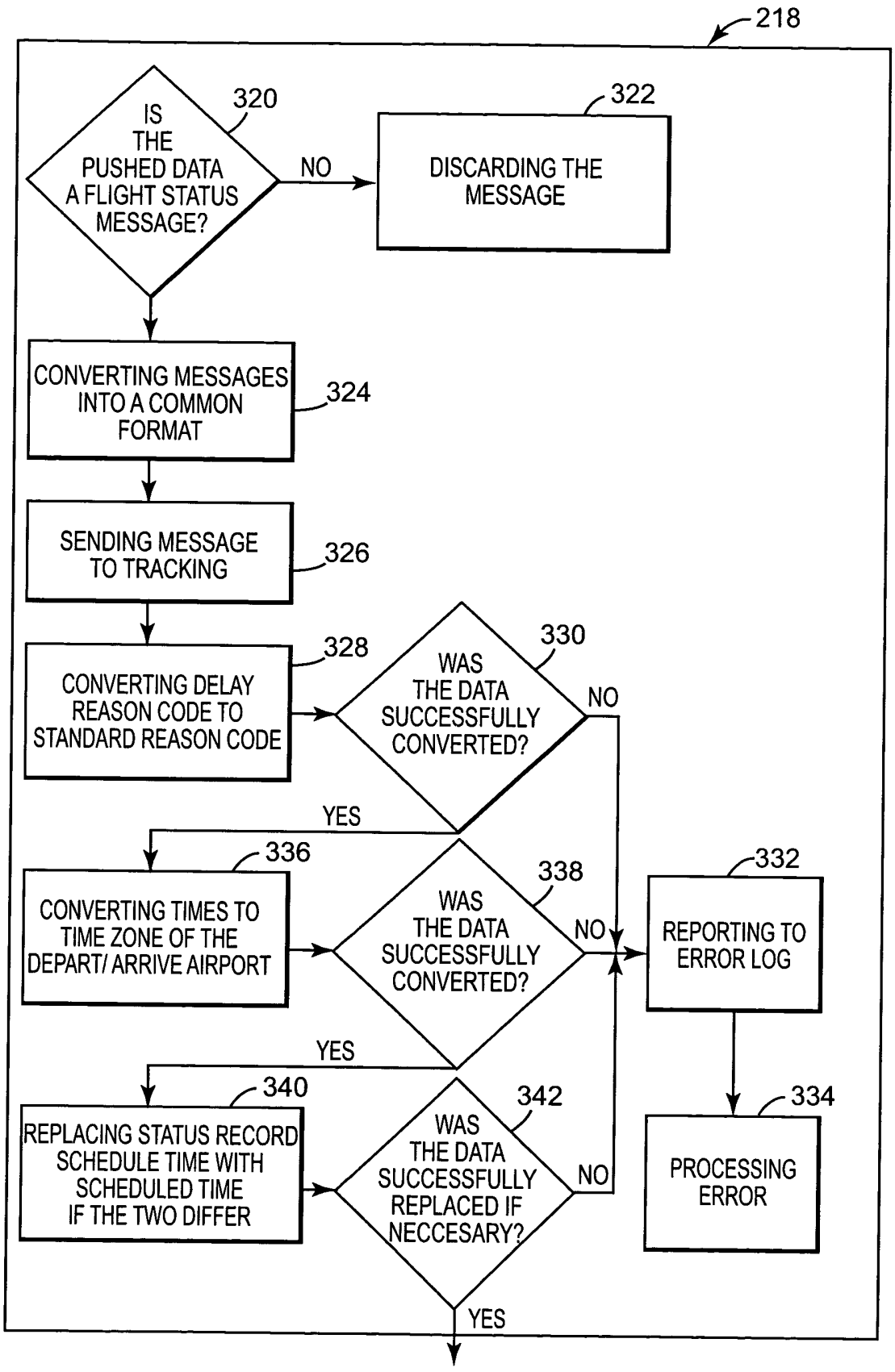
218
320
IS THE PUSHED DATA A FLIGHT STATUS MESSAGE?
NO
322
DISCARDING THE MESSAGE
CONVERTING MESSAGES INTO A COMMON FORMAT
324
SENDING MESSAGE TO TRACKING
326
CONVERTING DELAY REASON CODE TO STANDARD REASON CODE
328
330
WAS THE DATA SUCCESSFULLY CONVERTED?
NO
YES
336
CONVERTING TIMES TO TIME ZONE OF THE DEPART/ ARRIVE AIRPORT
338
WAS THE DATA SUCCESSFULLY CONVERTED?
NO
332
REPORTING TO ERROR LOG
YES
340
REPLACING STATUS RECORD SCHEDULE TIME WITH SCHEDULED TIME IF THE TWO DIFFER
342
WAS THE DATA SUCCESSFULLY REPLACED IF NECCESARY?
NO
334
PROCESSING ERROR
YES

Fig. 16

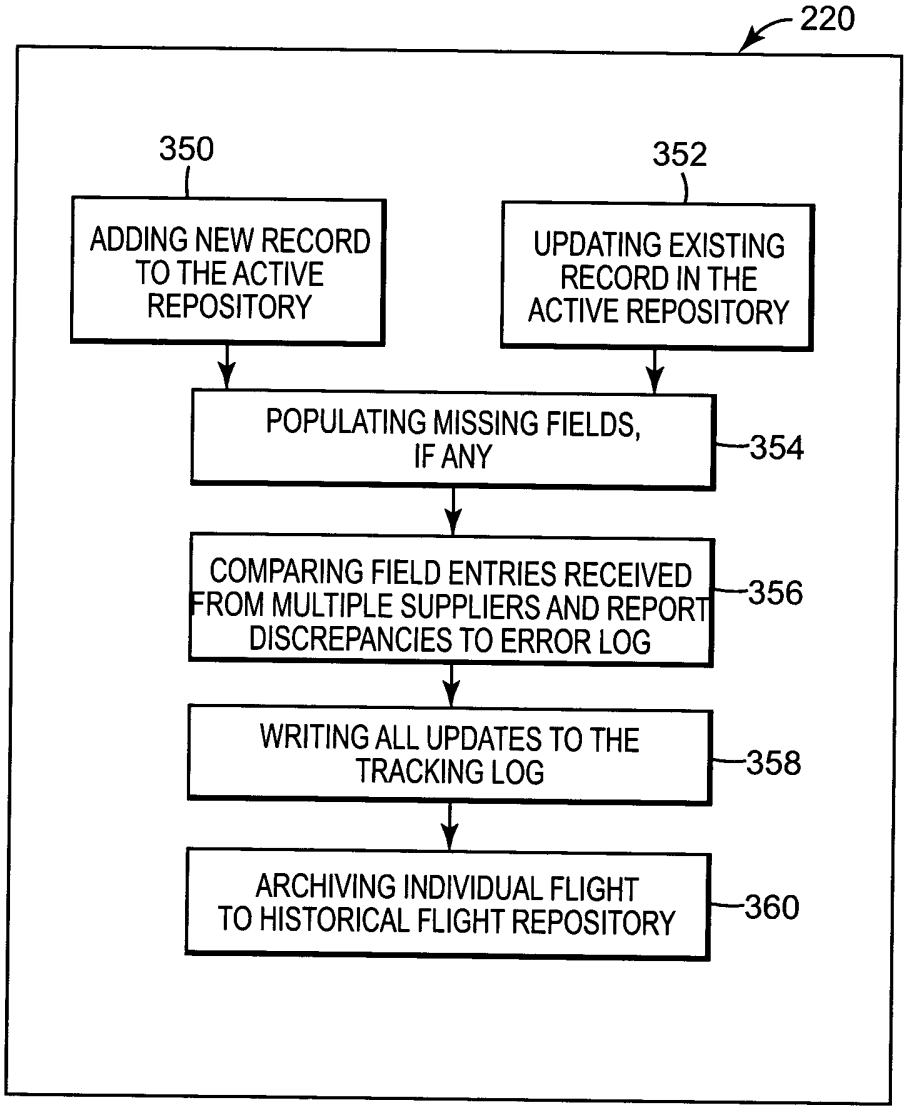
220
350
352
ADDING NEW RECORD TO THE ACTIVE REPOSITORY
UPDATING EXISTING RECORD IN THE ACTIVE REPOSITORY
POPULATING MISSING FIELDS, IF ANY
354
COMPARING FIELD ENTRIES RECEIVED FROM MULTIPLE SUPPLIERS AND REPORT DISCREPANCIES TO ERROR LOG
356
WRITING ALL UPDATES TO THE TRACKING LOG
358
ARCHIVING INDIVIDUAL FLIGHT TO HISTORICAL FLIGHT REPOSITORY
360

Fig. 17

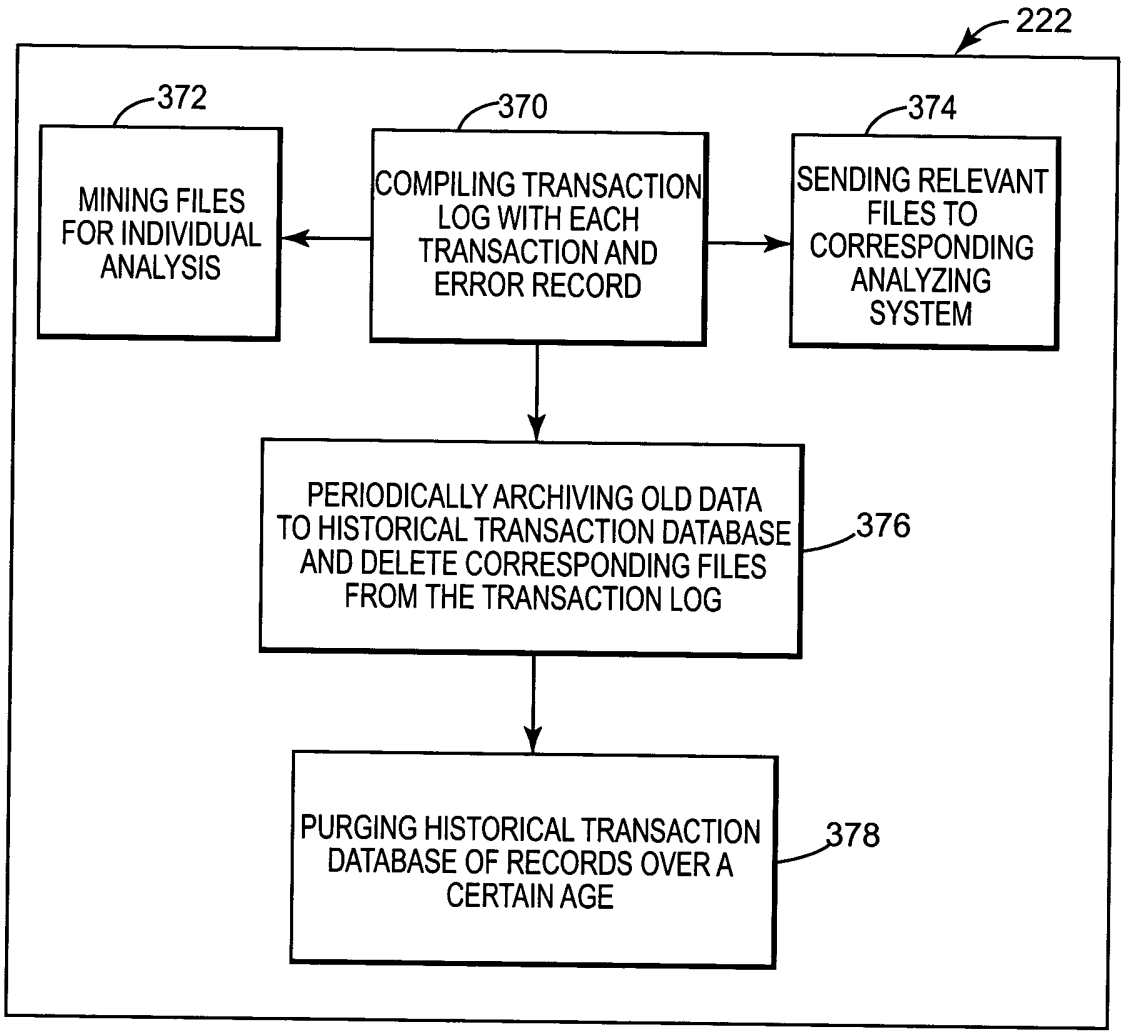
222
372
370
374
MINING FILES FOR INDIVIDUAL ANALYSIS
COMPILING TRANSACTION LOG WITH EACH TRANSACTION AND ERROR RECORD
SENDING RELEVANT FILES TO CORRESPONDING ANALYZING SYSTEM
PERIODICALLY ARCHIVING OLD DATA TO HISTORICAL TRANSACTION DATABASE AND DELETE CORRESPONDING FILES FROM THE TRANSACTION LOG
376
PURGING HISTORICAL TRANSACTION DATABASE OF RECORDS OVER A CERTAIN AGE
378

Fig. 18

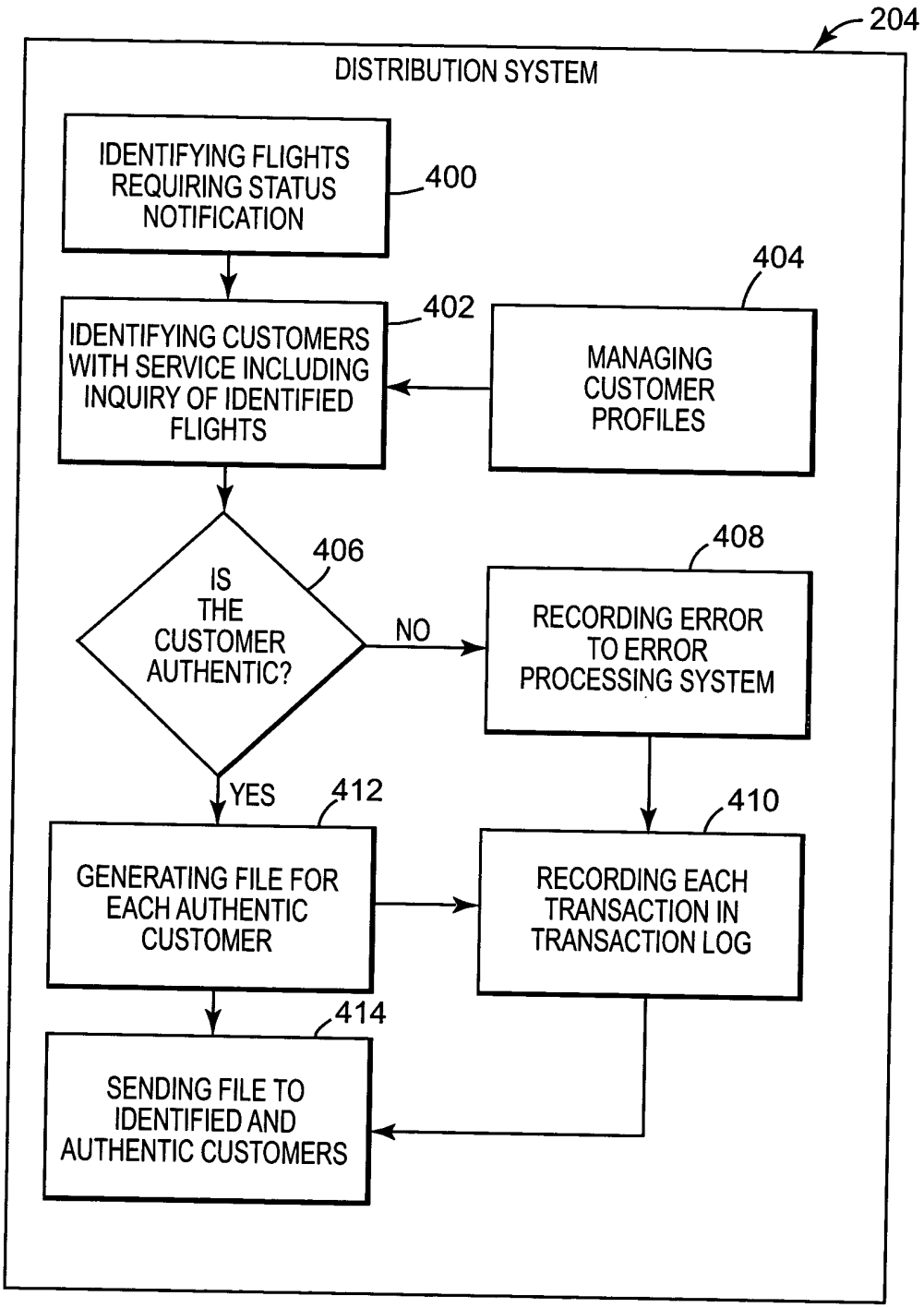
204
DISTRIBUTION SYSTEM
IDENTIFYING FLIGHTS REQUIRING STATUS NOTIFICATION
400
404
IDENTIFYING CUSTOMERS WITH SERVICE INCLUDING INQUIRY OF IDENTIFIED FLIGHTS
402
MANAGING CUSTOMER PROFILES
IS THE CUSTOMER AUTHENTIC?
406
NO
408
RECORDING ERROR TO ERROR PROCESSING SYSTEM
YES
412
410
GENERATING FILE FOR EACH AUTHENTIC CUSTOMER
RECORDING EACH TRANSACTION IN TRANSACTION LOG
414
SENDING FILE TO IDENTIFIED AND AUTHENTIC CUSTOMERS

Fig. 19